



# AVOIDING COMMON BUILDING CODE VIOLATIONS CAN SAVE YOU TIME AND MONEY WITH YOUR PROJECT



RE-INSPECTIONS DUE TO FAILED WORK  
OR JOBS THAT ARE NOT ACCESSIBLE  
COST BOTH CONTRACTORS AND CITY  
INSPECTORS TIME AND MONEY.

THIS INFORMATION HAS BEEN  
ASSEMBLED TO SHARE SOME COMMON  
BUILDING CODE VIOLATIONS WE  
ROUTINELY EXPERIENCE. OUR GOAL IS  
TO HELP YOU SAVE TIME AND MONEY  
BY AVOIDING THESE COMMON  
MISTAKES.

**Help us find the location to be inspected.**

**Applicable to all Trades – Premise Identification**

**Virginia Construction Code Section 110.5**

*Approved numbers or addresses shall be provided with all new buildings in such a position as to be plainly visible and legible from the street or road fronting the property.*



**No address posted.**



**Address posted along with building permit and site plans.**

**Once found, ensure that the item to be inspected is accessible.**

## **Applicable to all Trades - Access**

### **Virginia Construction Code Section 113.1.1**

*It shall be the duty of the person requesting any inspections required by this code to provide access to and means for inspection of such work.*



**Premises not available for inspection.**



**Premises available for inspection.**

**Avoid damage to buried infrastructure by calling Miss Utility.**

**Applicable to all Trades**

**The Virginia Underground Utility Damage Prevention Act (1979)**



**Severed service cable.  
Contractor did not call  
Miss Utility.**



**Miss Utility (811) called 48  
hours before digging.**

# Dig with **CARE**. Keep Virginia safe!

- C** all 811 before you dig
- A** llow the required time for marking
- R** espect and protect the marks
- E** xcavate carefully



# Plumbing – Support of Piping

Virginia Plumbing Code Section 306.1  
Virginia Residential Code Section P2605.1

*Buried piping shall be supported throughout its entire length.*



**PVC pipe (white) not properly bedded.**



**Pipe is properly bedded.**

# Plumbing – Cutting, Notching, Boring

Virginia Plumbing Code Section 307.2

Virginia Residential Code Section P2603.2

*A framing member shall not be cut, notched or bored in excess of limitations specified in the International Building Code.*



**Improper boring and notching.**



**Proper boring and notching  
with required nail guards.**

Boring and Notching as specified in the International Building Code.

### 2308.8.2 Framing details.

Joists shall be supported laterally at the ends and at each support by solid blocking except where the ends of the joists are nailed to a header, band or rim joist or to an adjoining stud or by other means. Solid blocking shall not be less than 2 inches (51mm) in thickness and the full depth of the joist. Notches on the ends of joists shall not exceed one-fourth the joist depth. Holes bored in joists shall not be within 2 inches (51 mm) of the top or bottom of the joist, and the diameter of any such hole shall not exceed one-third the depth of the joist. Notches in the top or bottom of joists shall not exceed one-sixth the depth and shall not be located in the middle third of the span.

Joist framing from opposite sides of a beam, girder or partition shall be lapped at least 3 inches (76 mm) or the opposing joists shall be tied together in an approved manner.

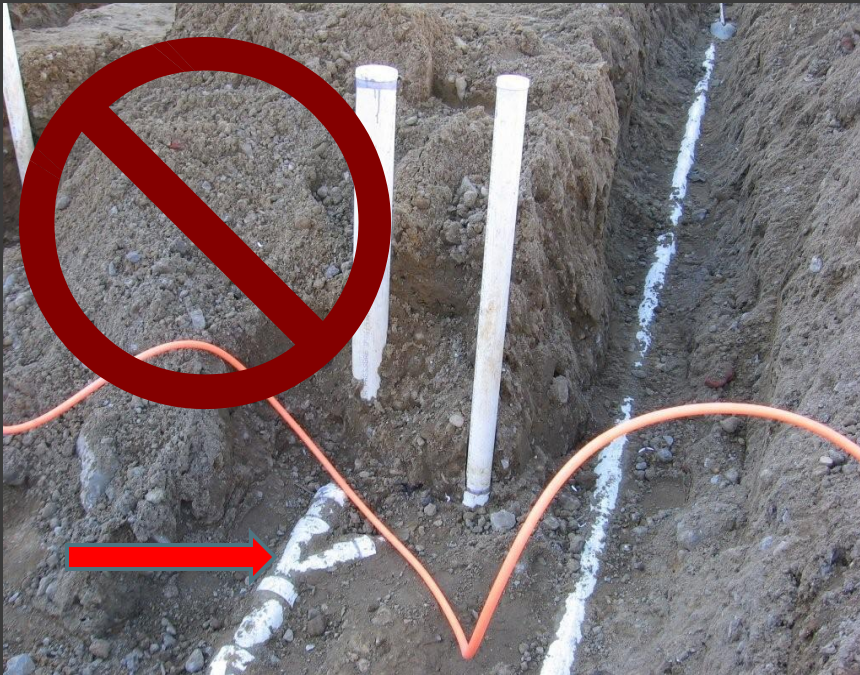
Joists framing into the side of a wood girder shall be supported by framing anchors or on ledger strips not less than 2 inches by 2 inches (51 mm by 51 mm).

# Plumbing - Connection

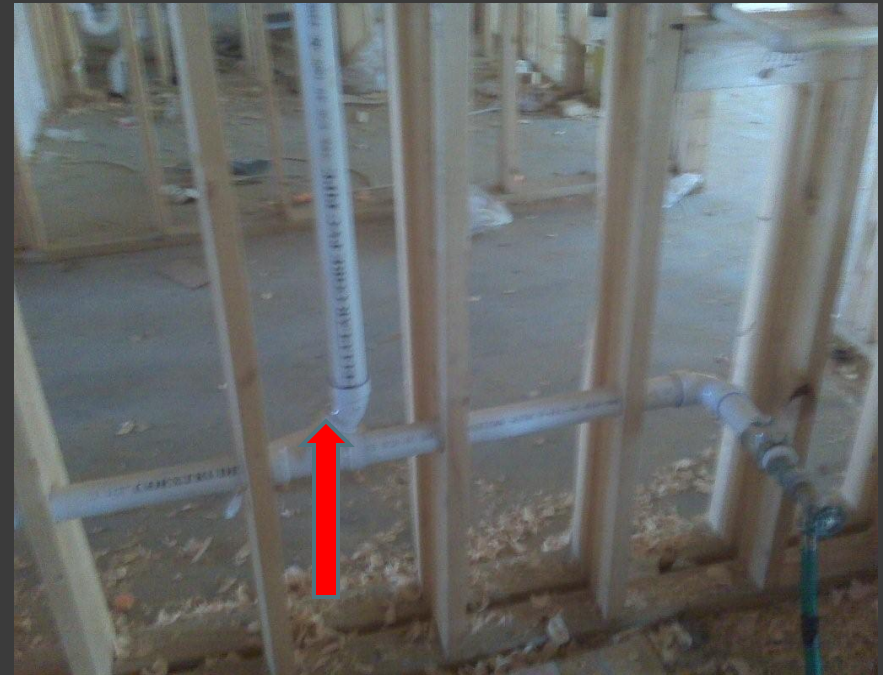
Virginia Plumbing Code Section 905.1

Virginia Residential Code Section P3101.2

*All individual, branch and circuit vents shall connect to a vent stack, stack vent, air admittance valve or extend to the open air.*



Two inch arm should be on a minimum 45 degree angle from horizontal and not flat.



Dry vent arm installed at 90 degree angle.

# Plumbing – Distance of Trap from Vent

Virginia Plumbing Code Section 906.1

Virginia Residential Code Section P3105.1

*Each fixture trap shall have a protecting vent located so that the slope and the developed length in the fixture drain from the trap weir to the vent fitting are within the requirements set forth in Table 906.1.*



**Vent below P-Trap not permitted.**



**Vent above P-Trap weir permitted.**

# Table 906.1

## Table P3105.1

### MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SLOPE (inch per foot)	DISTANCE FROM TRAP (feet)
1 ¼	¼	5
1 1/2	¼	6
2	1/4	8
3	1/8	12
4	1/8	16

FOR SI: 1 inch=25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m.

# Plumbing – Waste Stack Vent

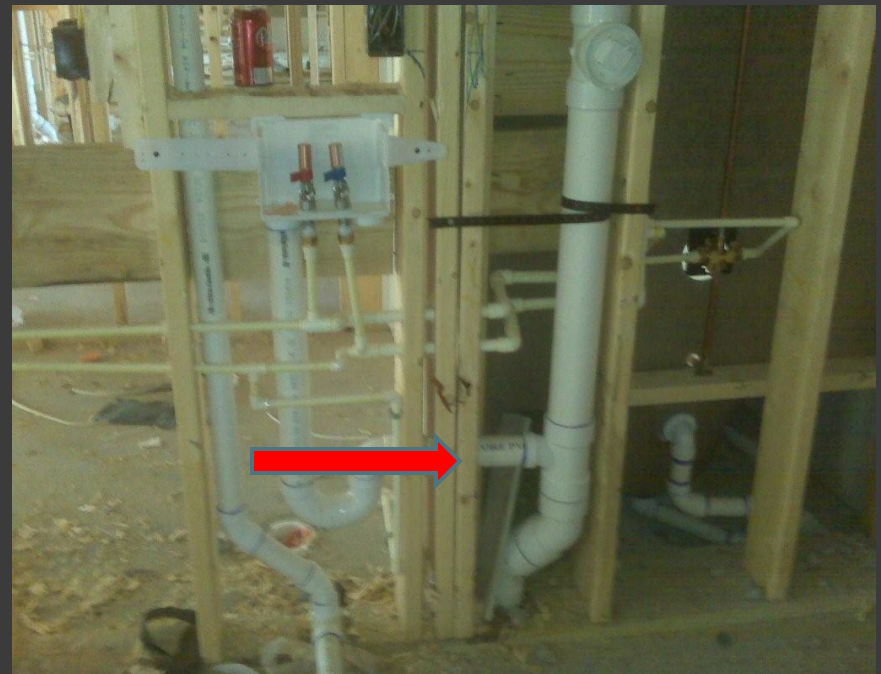
## Virginia Plumbing Code Section 910

### Virginia Residential Code Section P3109.2

*A waste stack shall be considered a vent for all of the fixtures discharging to the stack where installed in accordance with the requirements of this section.*



**Offset in waste stack vent above first fixture is not permitted.**



**Offset permitted below first fixture on waste stack vent.**

# Mechanical – Duct Separation

Virginia Mechanical Code Section 603.14

Virginia Residential Code Section M1601.3.6

*Ducts shall be installed with at least 4 inches of separation from earth except where they meet the requirements of section M1601.1*



Ducts shall be installed with at least 4 inches of separation from ground.



Ducts are properly separated from ground.

## Mechanical – Outdoor Discharge

### Virginia Mechanical Code Section 501.2

### Virginia Residential Code Section M1501.1

*The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an attic, soffit, ridge vent or crawl space.*



**The air removed by every mechanical exhaust system shall be discharged to the outdoors.**



**The air is properly discharged outdoors.**

## Mechanical – Support of Duct

Virginia Mechanical Code Section 603.10

Virginia Residential Code Section M1601.3.2

*Nonmetallic ducts shall be supported in accordance with the manufacturer's installation instructions.*



Non-metallic ducts shall be supported in accordance with the manufacturer's installation instructions.



Non-metallic ducts are properly supported.

# Mechanical – Sediment Traps

Virginia Mechanical Code Section 603.10

Virginia Residential Code, section G2419.4

*Where a sediment trap is not incorporated as part of the gas utilization equipment, a sediment trap shall be installed downstream of the equipment shutoff valve as close to the inlet of the equipment as practical. The sediment trap shall be either a tee fitting with a capped nipple in the bottom opening of the run of the tee or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers and outdoor grills need not be so equipped.*



**Sediment trap improperly installed.**



**Sediment Trap is properly installed.**

# Mechanical – Gas Pipe Bonding

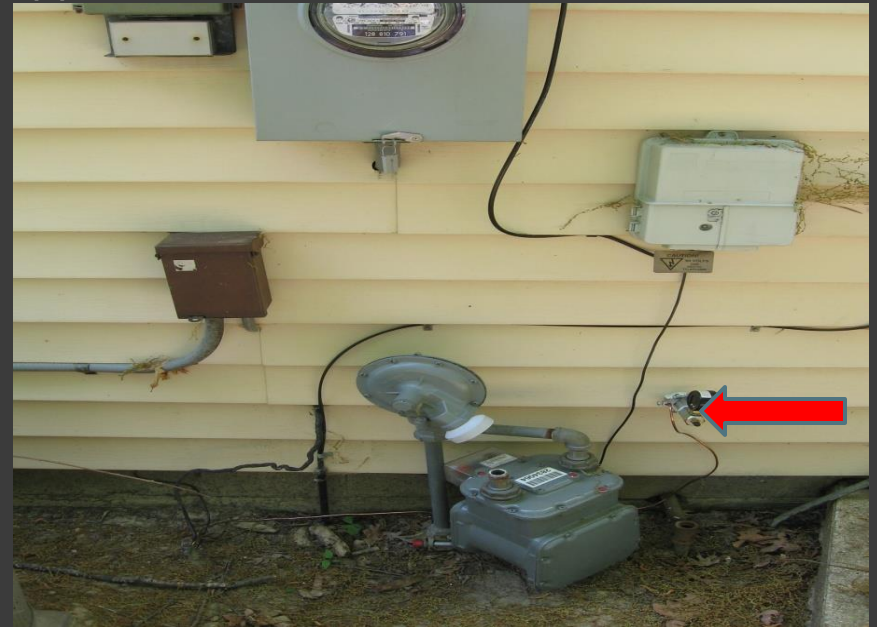
Virginia Fuel Gas Code Section 310.1

Virginia Residential Code Section G2411.1

*Each above-ground portion of a gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be bonded where it is connected to appliances that are connected to the equipment grounding conductor of the circuit supplying that appliance.*



**Corrugated Stainless Steel Tubing (CSST) gas piping not bonded.**

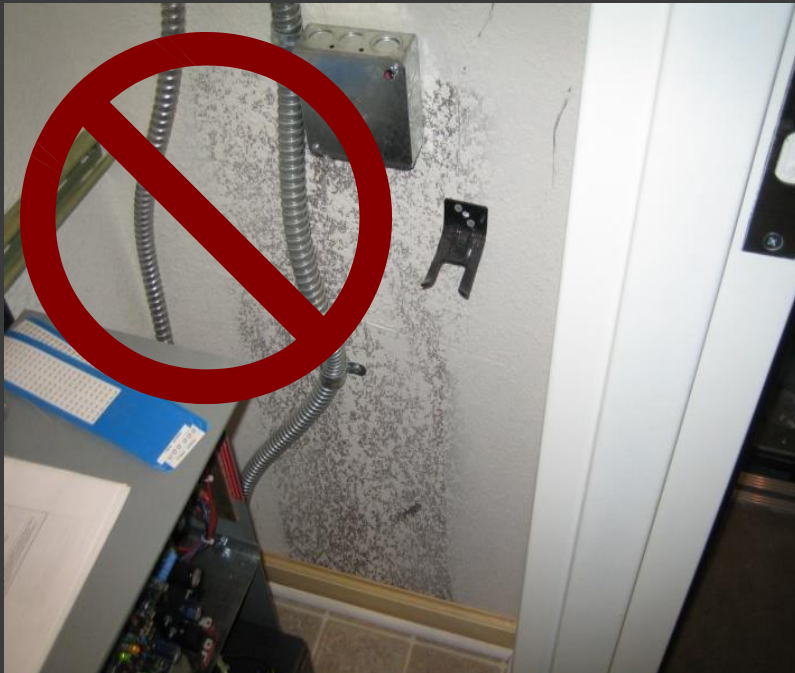


**Corrugated Stainless Steel Tubing (CSST) Gas Piping properly bonded.**

# Elevator – Fire Extinguishers

## American Society of Mechanical Engineers Section 8.6.1.6.5

*Except in jurisdictions enforcing NBCC, Class “ABC” fire extinguishers shall be provided in elevator electrical machinery and control spaces, walk-in machinery and control rooms for escalators and moving walks, and shall be located convenient to the access door.*



**No fire extinguisher available.**



**Fire extinguisher accessible.**

# Elevator – Sump Pit

## 2006 Virginia Plumbing Code Section 712.3.2

*The sump pit shall be not less than 18 inches (457 mm) in diameter and 24 inches (610 mm) deep, unless otherwise approved. The pit shall be accessible and located such that all drainage flows into the pit by gravity. The sump pit shall be constructed of tile, concrete, steel, plastic or other approved materials. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gas-tight removable cover adequate to support anticipated loads in the area of use. The sump pit shall be vented in accordance with Chapter 9.*



**Removable cover sits above floor.**



**Removable cover at level with pit floor.**

## Elevator – Signs and Data Plates

American Society of Mechanical Engineers Section 8.6.1.6.7

*Required signs and data plates that are damaged or missing shall be repaired or replaced.*



Missing required sign and data plates.



Box properly labeled.

## Elevator – Illumination of Pits

### American Society of Mechanical Engineers Section 2.2.5.1

*The lighting shall provide an illumination of not less than 100 lx (10 fc) at the pit floor and at a pit platform, when provided.*



**Required illumination not met.**



**Required illumination met.**

# Elevator - Access Doors and Openings

American Society of Mechanical Engineers, section 2.7.3.4.3

*Access openings in elevator hoistway enclosures where complete bodily entry is not necessary for maintenance and inspection of components shall be*

*(a) of adequate size and located to permit the required maintenance and inspection.*

*(b) of maximum width of 600 mm (24 in.) and a maximum height of 600 mm (24in.)*

*(c) provided with doors that shall be kept closed and locked. Keys to unlock the access doors to the elevator hoistways shall be of Group 1 Security*



**Elevator Access panel without lock is not permitted.**



**Elevator Access panel requires key to open.**

# Electrical – Defective Work

## Virginia Construction Code Section 113.6

*Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the Building Official.*



Work not ready for inspection.  
Wiring is not terminated in junction boxes and wires are not secured to structural members as required.



Ready for rough-in

# Electrical – Firestopping

National Electrical Code Article 300.21

Virginia Residential Code Section E3302.3

*Openings around electrical penetrations through fire-resistant rated walls, partitions, floors or ceilings shall be fire stopped using approved methods to maintain the fire resistance rating.*



**No fire stopping.**



**Proper fire stopping.**

# Electrical – Listing of Materials

National Electrical Code Article 352.6

Virginia Residential Code Section E3303.3

*RNC, factory elbows, and associated fitting shall be listed.*



**Conduit not listed.**



**Conduit properly listed.**

# Electrical – Minimum Cover

National Electrical Code Article 300.5

Virginia Residential Code Section E3703.1

*Direct buried cable or raceways shall be installed in accordance with the minimum cover requirements of Table 300.5/Table E3703.1.*



**Conduit not buried at proper depth.**



**Proper depth of 24".**

**Table 300.5/Table E3703.1**  
**Minimum Cover Requirements, Burial in inches**

LOCATION OF WIRING METHOD OR CIRCUIT	TYPE OF WIRING METHOD OR CIRCUIT				
	1 Direct burial cables or conductors	2 Rigid metal conduit or intermediate metal conduit	3 Nonmetallic raceways listed for direct burial without concrete encasement or other approved raceways	4 Residential branch circuits rated 120 volts or less with GFCI protection and maximum overcurrent protection of 20 amperes	5 Circuits for control of irrigation and landscape lighting limited to not more than 30 volts and installed with type UF or in other identified cable or raceway
All locations not specified below	24	6	18	12	6
In trench below 2-inch-thick concrete or equivalent	18	6	12	6	6
Under a building	0 (in raceway only)	0	0	0 (in raceway only)	0 (in raceway only)
Under minimum of 4-inch-thick concrete exterior slab with no vehicular traffic and the slab extending not less than 6 inches beyond the underground installation	18	4	4	6 (Direct burial) 4 (in raceway)	6 (Direct burial) 4 (in raceway)
Under streets, highways, roads, alleys, driveways and parking lots	24	24	24	24	24
One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes	18	18	18	12	18
In solid rock where covered by minimum of 2 inches concrete extending down to rock	2 (in raceway only)	2	2	2 (in raceway only)	2 (in raceway only)

For SI: 1 inch = 25.4 mm.

a. Raceways approved for burial only where encased concrete shall require concrete envelope not less than 2 inches thick.

b. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.

c. Where one of the wiring method types listed in columns 1 to 3 is combined with one of the circuit types in columns 4 and 5, the shallower depth of burial shall be permitted.

d. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in metal or nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 2 inches of concrete extending down to the rock.

e. Cover is defined as the shortest distance in inches (millimeters) measured between a point on the top surface of any direct-buried conductor, cable, conduit or other raceway and the top surface of finished grade, concrete, or similar cover.

# Electrical – Kitchen Counter Receptacle Spacing

National Electrical Code Article 210.52(C)(1)

Virginia Construction Code Section E3801.4.1

*Receptacles shall be installed for each counter space so that no point measured horizontally along the wall line is more than 2 feet from a receptacle outlet.*



Incorrect receptacle spacing.



Correct receptacle spacing.

# Building – Penetrations of Fire Resistance-Rated Assemblies

## International Building Code Section 712.3

*Penetrations into or through fire walls, fire-barrier walls, smoke-barrier walls and fire partitions shall comply with Sections 712.3.1 through 712.3.4.*



**Incorrect penetration of a fire rated assembly.**



**Properly sealed penetration of a fire rated assembly.**

# Building - Footings

## Virginia Residential Code Section R403.1

*All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill.*



**Footing should be free of debris and vegetative material.**



**Properly dug footing.**

# Building –Girder/Header Spans

Virginia Residential Code Sections R502.5/R602.7  
GIRDER SPANS AND HEADER SPANS FOR INTERIOR BEARING WALLS  
TABLE R502.5(2)



Beam improperly sized for length of span.



Correctly sized beam for length of span.

**TABLE R502.5(2)**  
**GIRDER SPANS AND HEADER SPANS FOR INTERIOR BEARING WALLS**  
(Maximum spans for Douglas fir-larch, hem-fir, southern pine and spruce-pine-fir and required number of jack studs)

		BUILDING WIDTH (feet)					
		20		28		36	
HEADERS AND GIRDERS SUPPORTING	Size	Span	NJ	Span	NJ	Span	NJ
One Floor only	2-2x4	3-1	1	2-8	1	2-5	1
	2-2x6	4-6	1	3-11	1	3-6	1
	2-2x8	5-9	1	5-0	2	4-5	2
	2-2x10	7-0	2	6-1	2	4-5	2
	2-2x12	8-1	2	7-0	2	6-3	2
	3-2x8	7-2	1	6-3	1	5-7	2
	3-2x10	8-9	1	7-7	2	6-9	2
	3-2x12	10-2	2	8-10	2	7-10	2
	4-2x8	9-0	1	7-8	1	6-9	1
	4-2x10	10-1	1	8-9	1	7-10	2
Two floors	4-2x12	11-9	1	10-2	2	9-1	2
	2-2x4	2-2	1	1-10	1	1-7	1
	2-2x6	3-2	2	2-9	2	2-5	2
	2-2x8	4-1	2	3-6	2	3-2	2
	2-2x10	4-11	2	4-3	2	3-10	3
	2-2x12	5-9	2	5-0	3	4-5	3
	3-2x8	5-1	2	4-5	2	3-11	2
	3-2x10	6-2	2	5-4	2	4-10	2
	3-2x12	7-2	2	6-3	2	5-7	3
	4-2x8	6-1	1	5-3	2	4-8	2
	4-2x10	7-2	2	6-2	2	5-6	2
	4-2x12	8-4	2	7-2	2	6-5	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches.

b. Tabulated values assume #2 grade lumber.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ - Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.

# Building – Handrails and Guardrails

## Virginia Residential Code Section R311.5.6 Handrails.

*Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.*

## Virginia Residential Code Section R312.1 Guards.

*Porches, balconies, ramps or raised floor surfaces located more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads.*

*Porches and decks which are enclosed with insect screening shall be equipped with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.*



**Missing handrail and incorrect guardrail installation.**



**Correct handrail and guardrail.**

# Building – Truss Design

## Virginia Residential Code Section R802.10.2

*Wood trusses shall be designed in accordance with accepted engineering practice. The design and manufacture of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered professional.*



**Site constructed truss system not permitted.**



**Engineered truss system permitted.**